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 United States
Department of
Agriculture

**Soil
Conservation
Service**

**Salt Lake City
Utah**



PLAN OF STUDY FOR USDA LATERAL IMPROVEMENTS

**Supplement to USDA Plan of
Study for The Uintah Basin Unit
Colorado River Basin
Salinity Control Program**

January 1981

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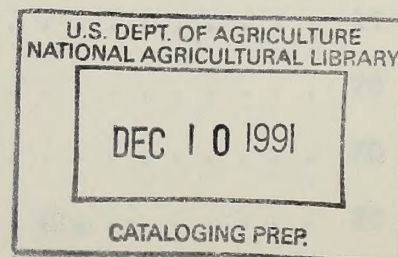


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PLAN OF STUDY
for
USDA LATERAL IMPROVEMENTS

Supplement to USDA PLAN OF STUDY
for

The Uintah Basin Unit
Colorado River Basin Salinity Control Program
January 1981

I. INTRODUCTION

The Soil Conservation Service (SCS) has agreed to "plan and arrange for the installation of needed improvements... on those laterals mutually agreed upon" with the Water and Power Resources Service (WPRS). "Highest priority will be given to those laterals on which improvements are necessary for the planning and installation of on-farm system improvement measures."^{1/} This supplement to the USDA Plan of Study outlines the procedure SCS will follow for studying potential lateral improvements to be installed under ongoing USDA programs.

Laterals, for the purpose of this USDA study, are defined as any part of a non-Federal distribution system serving two or more landowners. Canals and major laterals will generally not be studied or improved by USDA, but by the WPRS.

The Colorado River Basin Salinity Control Act (Public Law 93-320) authorizes USDA to participate in salinity control studies and investigations along with the US Department of the Interior (USDI) and the Environmental Protection Agency (EPA). Title II (Section 203) of the Act directs the Secretary of the Interior "to cooperate with the Secretary of Agriculture in carrying out research and demonstration projects and in implementing on-the-farm improvements and farm management practices and programs which will further the objectives" of the Salinity Control Program upstream of Imperial Dam on the Colorado River. The Uintah Basin Unit is one of the irrigation source units listed under Section 203 of Title II.

A report entitled "USDA Salinity Report, Uintah Basin Unit, Utah" was published in January 1979 and supplemented in November, 1980. This report presented alternative plans for improvement of on-farm irrigation systems and the expected effects of these improvements. The report presented a "Selected Plan" and a program for implementing the improvements. The report recommended that the plan be installed over a ten-year period. Based on the USDA Salinity Report, Congress directed that two million dollars of FY 1980 Agricultural Conservation Program (ACP) funds be allocated to Uintah and Duchesne Counties to begin implementing the on-farm program for salinity control.

^{1/} From Supplement to March 27, 1975 Memorandum of Agreement between the WPRS and the SCS, relating to Title II of Public Law 93-320. (See Exhibit A.)

The Water and Power Resources Service (WPRS) is currently studying the major canals and laterals in a portion of the Uintah Basin Unit. They expect to publish a report in 1982 which will identify needed improvements on canals and major laterals in this part of the Uintah Basin.

The expected improvements under WPRS's salinity control program are several years from construction. Many of the needed on-farm improvements will not function properly until the lateral improvements are made. Also, any change in the location or elevation of the water delivery point caused by lateral improvements will affect on-farm systems. The most efficient construction sequence is to complete work on a lateral prior to, or concurrently with, installation of on-farm systems measures.

Investigations will be conducted under authority of Section 6, Public Law 83-566, as amended; the Memorandum of Understanding between the Department of the Interior and the Department of Agriculture, effective November 27, 1974, which was entered into under the authority of the Interdepartment Work Service Act of March 4, 1915 (38 Stat. 1084), as amended; the Economy Act of June 30, 1932 (31 U.S.C. Sec. 686); and the Colorado River Basin Salinity Control Act of June 24, 1974 (88 Stat. 266). In addition, a Memorandum of Agreement between the Water and Power Resources Service (WPRS), USDI, and the Soil Conservation Service, USDA, dated March 27, 1975, provides for accomplishing the work under Title II of the Colorado River Basin Salinity Control Act. The August 23, 1979 Supplement to this Memorandum of Agreement is the basis for SCS carrying out this study of needed lateral improvements (see Exhibit A).

The results of the study will be presented as a supplement to the January 1979 USDA Salinity Report, Uintah Basin Unit, Utah. The supplement will specify the recommended lateral improvements to be implemented with ongoing USDA programs. The estimated quantities, costs, effects and benefits of the recommended improvements will be shown.

II. OBJECTIVES

The objectives of SCS's lateral improvement study are to identify which lateral improvements are necessary to make on-farm systems function properly and to determine the impacts of these improvements. An estimated 30 to 40 percent of the nearly 800 miles of laterals throughout the Basin may require improvement which could be made through ongoing USDA programs. The impacts of these improvements on water supplies, salinity, crop response, and wildlife habitat will be determined. On-farm and downstream economic benefits and costs will be determined. The downstream salinity benefits will be determined at Imperial Dam on the Colorado River.

The overall objectives of the USDA's participation in salinity control studies are to: (1) determine the contribution of salt loading from irrigated and related upland areas, and (2) determine the opportunity for reducing salt loading through improvements on irrigated farms and reducing erosion and sediment delivery from the privately owned upland areas.

III. GENERAL DESCRIPTION OF THE STUDY UNIT

Physical

The Uintah Basin Unit lies in the northeastern part of the State of Utah. It includes all of the Duchesne River, Ashley Creek, and Brush Creek drainages. These three streams begin in the Uinta Mountains and flow into the Green River, which flows into the Colorado River.

The surface waters of the Basin are of excellent quality as they enter the irrigated area from the Uinta Mountains to the north. The weighted average total dissolved solids (TDS) of this water ranges from 34 to 168 milligrams per liter (mg/l). The Strawberry River, from the west part of the Uintah Basin, has an average TDS of 412 mg/l where it enters the irrigated area. As the streams flow toward the Green River, they pick up salt from natural sources and from irrigation return flow. The weighted average TDS of the Duchesne River at its confluence with the Green River is 607 mg/l.

The irrigation systems are dependent on snowmelt runoff for the major portion of their water supply. The quantity of irrigation water varies from an excess during May and June to a deficit during the late summer months. There are not enough irrigation water storage facilities to hold the early runoff for later use. This leads to over irrigation during the early spring runoff. As the water supply diminishes, available water is spread over too many acres and low priority crops suffer. Such practices result in reduced production and inefficient irrigation water management.

Land and Water Use and Management

There are 2,911,000 acres within the Uintah Basin Unit. The following is a breakdown of land ownership:

National Forest Lands (FS)	1,219,000 ac.
National Resource Lands (BLM)	151,000 ac.
Waterfowl Refuge (USFWS)	12,000 ac.
Private Lands (Indian and Non-Indian)	1,471,000 ac.
State Lands	<u>58,000 ac.</u>
Total	2,911,000 ac.

Of the private lands (Indian and non-Indian), there are about 205,000 acres of irrigated crop and pasture land. About 21,000 acres are left unirrigated in any given year.

The principal crops grown are pasture, alfalfa, small grains, and corn for silage, in that order. The 1974 Census of Agriculture shows the average irrigated area per farm is 130 acres in Uintah County and 170 acres in Duchesne County.

The common method of irrigation is wild flooding. Most irrigated fields have not been leveled. Furrows are used on corn. Barley and some alfalfa fields are corrugated. There are few on-farm water measuring devices. There are no tailwater recovery systems. However, reuse of tailwater is common since it often re-enters lower canals, laterals, or farm ditches downslope from the irrigated fields.

Water rights in the Uintah Basin are tied to the land and vary between drainages. The usual water rights provide for three or four acre-feet of water per acre of irrigated land annually. Costs for irrigation water are based on the acres of land irrigated, not on the amount of water used.

The intermingling of private land ownership between Indian and non-Indian creates problems in distributing water. Some canals carry both Indian and non-Indian water with different water rights and priorities. Hence, extra canals, structures, and other facilities have been installed in an attempt to provide separate water for the two kinds of land.

Socioeconomic

The total population of the Uintah Basin in 1970 was about 20,000. There was a decline in population from 1940 to 1960 in Duchesne County of 20 percent. This decline is largely attributable to a diminishing need for agricultural labor. During the same period, the Uintah County population remained stable through an economy based more on tourism and fossil fuel exploration.

The rapidly increasing population of Duchesne and Uintah Counties since 1970 is the result of accelerating energy development in the Uintah Basin and construction of the Central Utah Project by the WPRS. The increased oil activity in the summer of 1970 started a rapid influx of people into the traditionally rural Uintah Basin. This influx has leveled off, but a sustained, although lower, growth rate is anticipated through the year 2000.

Mining and processing of gilsonite, bituminous sandstones and phosphate is expected to continue as important industries in the Basin.

IV STATUS OF WATER AND RELATED LAND RESOURCE PROGRAMS

USDA Programs

In January 1979, SCS completed the "USDA Salinity Report, Uintah Basin Unit, Utah." The report presented alternatives and impacts for implementation of on-farm irrigation systems.

In FY 1980, Congress recommended that the Agricultural Stabilization and Conservation Service (ASCS) allot two million dollars for the initial cost-sharing of salinity control measures in the Uintah Basin. This money was initially targeted towards several selected areas.

A monitoring program is being initiated to measure the impacts on salinity resulting from this accelerated treatment program. The Science and Education Administration-Agriculture Research (SEA-AR) and the Utah Health Department will assist in establishing procedures to monitor and evaluate the impacts of salinity control measure in the Basin.

SCS has studied the Martin and Sheehan Laterals in the Dry Gulch area of the Uintah Basin and is preparing a work plan for a land treatment watershed project. SCS plans to monitor wildlife and vegetative changes before, during, and after construction of the land treatment watershed project.

Other Agency Programs and Projects

The WPRS is studying some of the canals and major laterals in detail. They have estimated canal seepage losses for many of the other canals and major laterals in the Basin, based on the soil type and configuration of the canal.

The Central Utah Project (CUP) of the WPRS has involved much of the Basin in its studies. Canal system improvements to reduce seepage in high loss reaches are part of the planned project work.

The Vernal Unit of the CUP was completed in 1962. This project stores high runoff water from Ashley Creek in the Steinaker Reservoir. The Steinaker Service Canal conveys the water through Ashley Valley where it is delivered to agricultural lands. Exchange agreements among the various irrigation companies in Ashley Valley facilitate an integrated distribution of the total water supply.

Starvation Reservoir, which is part of the Bonneville Unit of the CUP, was completed in 1970. This reservoir stores water from the Strawberry and Duchesne Rivers, providing supplemental water for late season use. It also provides replacement water for cropland along the Duchesne River in exchange for future transbasin diversion of upstream direct flows. Canal improvements are under construction as part of this WPRS project.

The Jensen Unit of the CUP includes Red Fleet Reservoir as its major feature. It stores water on Brush Creek in Ashley Valley for municipal, industrial and irrigation uses.

The Upalco and Uinta Units of CUP are planned for construction and both include some canal system improvements.

The Utah State Division of Water Resources is also financing construction on two additional large storage reservoirs, rehabilitation of an existing reservoir, and one canal and pipeline project. All four of these projects are under construction.

Construction of several reservoir and canal projects has been financed in the past by the Utah Division of Water Resources. Some of these are still being repaid by the sponsoring irrigation companies. Four new projects are being considered for financing in the Basin.

The Uintah Basin Association of Governments has completed a study funded by the Environmental Protection Agency under Section 208 of Public Law 92-500. An application was made to ASCS under the Rural Clean Water Program for a project in the Talmage area, in the northwest Uintah Basin, as a result of the 208 study.

Both Utah State University and Colorado State University have studies underway in the various salinity control units. These studies examine current hydro-salinity concepts and continue to identify new salinity related problems.

V. PROBLEMS, NEEDS, AND POTENTIAL FOR IMPROVEMENT

Salinity

Analyses in the USDA Salinity Report show about 510,000 tons of salt leaving the Uintah Basin area annually. This is based on measurements at USGS and WPRS water quantity and quality monitoring stations. These salts are identified as coming from the following sources:

National Forest Lands	19%	95,000 tons	
Rangeland	28%	145,000 tons	
Irrigated Land			
On-farm Systems	35%	180,000 tons	(177,200 tons from within study area)
Conveyance Systems	9%	45,000 tons	
Point Sources and M&I	9%	45,000 tons	
	100%	510,000 tons	

Both natural runoff and irrigation contribute to the problem, either by salt concentration or by salt loading. Salt concentration is caused by removal of water through consumptive use by irrigated crops and phreatophytes, leaving the mineral constituents in the remaining water. Salt loading occurs as deep percolating irrigation water and natural subsurface flows dissolve subsurface minerals while flowing back to the river. Both processes are at work in the Uintah Basin.

The USDA Salinity Report shows that 76,600 tons of salt can be stopped from entering the river system as a result of on-farm improvements through the select plan. An additional tonage of salt can be removed by lateral improvements. Reduced water losses decrease water availability to phreatophytes. This water becomes available for crops and to flow downstream and enhance the dilution effect.

Irrigation Systems and Management

The USDA Salinity Report identifies problems and presents a "Selected Plan" to improve the on-farm irrigation systems.

Considerable irrigation water is being lost as it is conveyed through nearly 800 miles of laterals. Losses are attributable to seepage and leakage at structures and headgates. Water is consumed by phreatophytes growing on and along ditch banks. These losses contribute to salt loading and salt concentrating in the study area.

Some reaches of laterals with excessive seepage have been located by the WPRS. Additional reaches of laterals with high seepage need to be identified. Those reaches of laterals needing improvement for compatibility with the improved on-farm systems will be identified. It is anticipated that lateral improvements would only be installed where necessary to support on-farm systems and where high seepage losses contribute excessively to the salinity problem.

VI. IMPLEMENTATION OPPORTUNITIES

Landowners in the area are already implementing some of the on-farm improvements for salinity control. ASCS has accelerated their ACP cost-sharing program in the Basin. Based on the USDA Salinity Report, ASCS has selected several areas in which to concentrate their resources for the first year. They are also encouraging farmers to participate in pooling agreements so implementation will take place on contiguous properties and adjacent conveyance systems.

Support for implementation of canal and lateral improvements with USDA programs has been indicated by the Uintah Basin Soil Conservation District and irrigation companies.

A plan for monitoring and evaluating changes in water quality and quantity is being developed. It will cover both the on-farm and lateral improvements. Existing data collection stations will be used wherever possible to provide historical data to compare with future measurements. Wildlife and vegetal changes will also be monitored.

VII. MAJOR ELEMENTS OF THE STUDY

Major elements of the study include: (1) determine the location and extent of lateral improvements needed to support on-farm improvements and reduce excessive seepage, and which can be implemented with USDA programs; (2) develop design criteria for planning; (3) estimate quantities and costs of recommended improvements; (4) determine the effects of recommended improvements; and (5) coordinate study activities with other federal, state and local agencies in the Basin.

VIII. AGENCY RESPONSIBILITIES

USDA Agencies - A January 22, 1980 Memorandum of Understanding between ASCS, SEA, and SCS defines the responsibilities of each agency relating to the Uintah Basin Salinity Control Unit. This memorandum is attached as Exhibit B.

Water and Power Resources Service -The WPRS will furnish available data on laterals and will assist in correlating information on canal and lateral systems.

IX. ADMINISTRATION OF STUDY

Arrangements for Coordination

Local coordination of USDA activities with state and other federal agencies in the Basin is accomplished through the Uintah Basin Salinity Control Coordinating Committee. This is a local committee composed of one member from each of the following agencies and organizations: SCS, Farmers Home Administration, Bureau of Indian Affairs, WPRS, Extension Service, County Commissions, Uintah Basin Soil Conservation District, Utah State Division of Water Resources, Utah State Division of Wildlife Resources, and U.S. Fish and Wildlife Service.

Coordination of activities at the regional and state levels will continue to involve participating USDA and USDI agencies, State of Utah, the Ute Indian Tribe, and other of the above mentioned agencies.

Description of Work Items

1. Coordination and Public Involvement:

SCS District Conservationists (DCs) will maintain coordination of information dissemination at the local level. DCs will report study progress and obtain needed information from local groups and agencies.

The SCS Salinity Team Leader and SCS Assistant State Conservationist (Water Resources and Programs) will coordinate the lateral study activities with other federal and state agencies.

Coordination will include data acquisition from agencies, especially Utah Division of Water Resources and the WPRS. Coordination will also include determining which laterals to study and agreement on procedures and results as the study progresses.

Public involvement will be carried out under the leadership of the SCS and Uintah Basin SCD. Input from the public will be solicited to help identify laterals with excessive seepage and the recommended improvements.

2. Data Collection:

A map showing all canals and laterals presently in use has been developed. This map will be reviewed by all interested parties for accuracy. This map will become a common base for coordination and correlation with other agencies of all canal and lateral work.

Laterals for the purpose of this study are defined as any part of the distribution system serving two or more landowners. Not all laterals will be studied under this program. The following data will be collected for each of the lateral systems (composite of all laterals under one canal company):

- a. Verify location map and beginning and end point of laterals
- b. Total acreage served by each lateral system
- c. Total length of laterals in each system
- d. Water quality and diversion data for each system
- e. Identify specific losing reaches of lateral
- f. Existing lining or pipeline improvements
- g. Operation and maintenance costs of existing systems
- h. Wetlands, wildlife habitat, and wildlife resources related to lateral conveyance losses
- i. Cultural and historical resources related to lateral systems

3. Develop Criteria:

Average design capacities will be based on the irrigation requirement during the peak month and future weighted cropping patterns. Consideration will be given to supplying all land having a water right. Future on-farm irrigation efficiencies will be based on installation of the "Selected Plan" from the USDA Salinity Report.

Improvement costs will be developed for laterals by typical flow rates. Criteria for determining impacts to wetlands and wildlife habitat will be based on the same procedure as used in the on-farm study.

4. Size, Quantities, and Costs:

Required delivery at each turnout will be determined and laterals sized accordingly. The only alternatives will be sizes and materials to best match the "Selected Plan" for on-farm system improvements.

Two alternatives for lateral improvements will be analyzed as follows:

Alternative 1 -The minimum lateral improvements needed for proper operation of the on-farm system. The alternative will consist primarily of pipelines to supply water under gravity pressure for sprinkler systems but also includes some lateral improvements for proper operation of on-farm surface systems.

Alternative 2 -The lateral improvements identified in alternative 1 plus improvements to selected lateral reaches where excessive seepage and leakage is causing significant salt pickup.

Costs will be estimated for each alternative by multiplying typical unit costs times the length of improvement needed.

Costs to compensate for wildlife habitat losses and to protect cultural and historical resources will be determined.

5. Water and Salt Budgets:

Seepage from laterals will be determined using average rates for each soil type times the length of lateral in that soil type. Available seepage data from prior studies by SCS and WPRS will be used wherever possible. Seepage rates with improvements will be determined in the same manner. Salt concentration of the seepage water will be estimated from water quality data from drains in similar areas and soils. Reuse of seepage water will be estimated where applicable.

Water budgets on laterals will consider seepage reduction and changes in crop or phreatophyte consumptive use in terms of acre-feet per year. Salt budgets will be expressed in terms of tons of salt per year pickup from seepage. Water and salt impacts of the alternatives will be routed to Imperial Dam for physical and economic analysis.

Water and salt budgets will be determined similarly to those in the earlier USDA Salinity Report. Only partial budgets pertaining to the impacts of lateral improvements will be developed. Supplemental water and salt budget tables will be developed to display the impacts of proposed lateral improvements.

6. Economics:

On-farm benefits from lateral improvements will be from increased yields made possible by the water saved from seepage losses. Farms with an existing full water supply may have little or no net on-farm benefits.

Downstream impacts of the changed water and salt volume will be calculated at Imperial Dam on the Colorado River. Economic benefits will be based on the value of the milligram per liter change in salt concentration at Imperial Dam.

All benefits and costs for the "Selected Plan" from the prior USDA on-farm study will be updated to the present and supplemented with benefits and costs developed for the lateral improvements. All benefits and costs will be correlated to the same year.

7. Environmental and Biological Evaluation:

An environmental evaluation procedure will be used to examine and document expected effects on the environment. This will be done for each irrigation company or evaluation unit in order to adequately describe both short-term and long-term effects.

The National Register of Historic Places will be checked to determine if any listed cultural resources might be impacted by improvements in the lateral system. Appropriate contacts will be made with the State Historic Preservation Officer to determine if any potentially eligible sites exist that may be impacted. Cultural resource surveys will be arranged as necessary.

Appropriate contacts will be made with the U. S. Fish and Wildlife Service and Utah Division of Wildlife Resources to determine if there will be any impacts on threatened or endangered species of plants or animals and identify means of avoiding these impacts. A Fish and Wildlife Service biologist on an IPA detail to SCS in the Uintah Basin will assist in the planning and evaluation of lateral improvements.

Other items to be considered (as appropriate) include the effects on water and air quality, stream flow, watertable levels, wildlife habitat, wetlands, erosion and sedimentation, appearance of the landscape, prime and unique farmlands, other important land uses and recreation. Existing inventories are adequate in most cases to identify present conditions.

All environmental and biological impacts expected to be caused by lateral improvements will be displayed as supplemental tables to the on-farm system impacts.

8. Report:

A draft report for the laterals will be developed and submitted to the SCS West Technical Service Center (WTSC) for technical review and the SCS National Office for policy review. The report will be written to supplement the existing USDA Salinity Report which addresses only on-farm systems. Necessary tables and narrative will be added to identify the lateral improvements and their impacts to a level of detail commensurate with the on-farm improvements. The report will not duplicate information already in the USDA Salinity Report for on-farm system improvements.

A second draft incorporating comments from the WTSC and the National Office will be prepared. Comments will be requested from all concerned water resource agencies and interested groups.

Comments received from agencies and the public will be incorporated and a final report prepared. This report will be printed and distributed to all holders of the existing USDA Salinity Report.

TABLE 1

USDA Uintah Basin Lateral Study

Summary Schedule of Activities, Funding and Staffing

Work Items	Comple. Date	Staff 1/ Leader	Work Days by Discipline										Total	Estim. Cost 2/
			Engineer	Soil Conserv.	Soil Scient.	Engrg. Tech.	Econom.	Biolog.	Environ Spec.	Irrig. Spec.	Archeo- logist	Type, Print Distribute		
1. Coordination and Public Involvement		16	18	10	3	2		6	4				59	11,300
2. Data Collection	1/27/81		15	20	5	10		4	2		2		58	9,500
3. Develop Criteria	2/10/81	3	10	4	7		3	3		10	2		42	7,800
4. Size, Quantities, Costs	2/25/81		10	2			5	6		10			33	6,300
5. Water and Salt Budgets	3/13/81		12		4					3			19	3,600
6. Economics	4/24/81		3	2			30						35	6,100
7. Environmental and Biological Eval.	5/8/81	2				4		5	5		2		18	3,100
8. Draft Report	6/26/81	3	10	4	2	5	6	5	2	2	1	8	48	8,100
Interagency Draft	8/27/81	3	7	2		2	2	2	2			6	26	4,600
Final Report	11/17/81	3	4					2	2			6	17	3,100
TOTAL		30	89	44	21	23	46	33	17	25	7	20	355	63,500

1/ Includes Prime Staff and AC

2/ Includes fringe benefits, overhead and chargeable leave

Table 2

CPM SCHEDULE FOR UINTAH BASIN LATERAL STUDY

PAGE 1.

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
1	10	236.0	0.	BEGIN STUDY		2 JAN80	5 DEC80	2 JAN80	5 DEC80	20	20
10	20	15.0	2925.	DATA COLLECTION	ENGINEER	5 DEC80	29DEC80	6 JAN81	27JAN81	CRITICAL ITEM	
10	11	20.0	3200.	DATA COLLECTION	SOIL CON	5 DEC80	6 JAN81	5 DEC80	6 JAN81	CRITICAL ITEM	
10	12	5.0	760.	DATA COLLECTION	SOIL SCIEN	5 DEC80	12DEC80	20JAN81	27JAN81	30	0
10	13	10.0	1280.	DATA COLLECTION	TECHNICIAN	5 DEC80	19DEC80	13JAN81	27JAN81	25	0
10	14	4.0	624.	DATA COLLECTION	BIOLOGIST	5 DEC80	11DEC80	21JAN81	27JAN81	31	0
10	15	2.0	460.	DATA COLLECTION	ENVRMNT SPEC	5 DEC80	9 DEC80	23JAN81	27JAN81	33	0
10	16	2.0	246.	DATA COLLECTION	ARCHEOLOGIST	5 DEC80	9 DEC80	23JAN81	27JAN81	33	0
20	30	3.0	684.	DEVELOP CRITERIA	STAFF LEADER	27JAN81	30JAN81	5 FEB81	10FEB81	7	7
20	21	10.0	1950.	DEVELOP CRITERIA	ENGINEER	27JAN81	10FEB81	27JAN81	10FEB81	CRITICAL ITEM	
20	22	4.0	640.	DEVELOP CRITERIA	SOIL CON	27JAN81	2 FEB81	4 FEB81	10FEB81	6	0
20	23	7.0	1064.	DEVELOP CRITERIA	SOIL SCIEN	27JAN81	5 FEB81	30JAN81	10FEB81	3	0
20	24	3.0	522.	DEVELOP CRITERIA	ECONOMIST	27JAN81	30JAN81	5 FEB81	10FEB81	7	0
20	25	3.0	468.	DEVELOP CRITERIA	BIOLOGIST	27JAN81	30JAN81	5 FEB81	10FEB81	7	0
20	26	10.0	2200.	DEVELOP CRITERIA	IRRIGN SPEC	27JAN81	10FEB81	27JAN81	10FEB81	CRITICAL ITEM	
20	27	2.0	246.	DEVELOP CRITERIA	ARCHEOLOGIST	27JAN81	29JAN81	6 FEB81	10FEB81	8	0
30	40	10.0	1950.	SIZE, QUANTITY, COST	ENGINEER	10FEB81	25FEB81	10FEB81	25FEB81	CRITICAL ITEM	
30	31	2.0	320.	SIZE, QUANTITY, COST	SOIL CON	10FEB81	12FEB81	23FEB81	25FEB81	8	0
30	32	5.0	870.	SIZE, QUANTITY, COST	ECONOMIST	10FEB81	18FEB81	18FEB81	25FEB81	5	0
30	33	6.0	936.	SIZE, QUANTITY, COST	BIOLOGIST	10FEB81	19FEB81	17FEB81	25FEB81	4	0
30	34	10.0	2200.	SIZE, QUANTITY, COST	IRRIGN SPEC	10FEB81	25FEB81	10FEB81	25FEB81	CRITICAL ITEM	
40	50	12.0	2340.	WATER, SALT BUDGETS	ENGINEER	25FEB81	13MAR81	25FEB81	13MAR81	CRITICAL ITEM	
40	41	4.0	608.	WATER, SALT BUDGETS	SOIL SCIEN	25FEB81	3 MAR81	9 MAR81	13MAR81	8	0
40	42	3.0	660.	WATER, SALT BUDGETS	IRRIGN SPEC	25FEB81	2 MAR81	10MAR81	13MAR81	9	0
50	60	3.0	585.	ECONOMICS	ENGINEER	13MAR81	17MAR81	21APR81	24APR81	27	27
50	51	2.0	320.	ECONOMICS	SOIL CON	13MAR81	17MAR81	21APR81	24APR81	28	0
50	52	30.0	5220.	ECONOMICS	ECONOMIST	13MAR81	24APR81	13MAR81	24APR81	CRITICAL ITEM	
60	70	2.0	456.	ENVRNMNT, BIOLOGIC EVAL	STAFF LEADER	24APR81	28APR81	6 MAY81	8 MAY81	8	8
60	61	4.0	512.	ENVRNMNT, BIOLOGIC EVAL	TECHNICIAN	24APR81	30APR81	4 MAY81	8 MAY81	6	0
60	62	5.0	780.	ENVRNMNT, BIOLOGIC EVAL	BIOLOGIST	24APR81	1 MAY81	1 MAY81	8 MAY81	5	0
60	63	5.0	1150.	ENVRNMNT, BIOLOGIC EVAL	ENVRMNT SPEC	24APR81	1 MAY81	24APR81	1 MAY81	CRITICAL ITEM	
60	64	2.0	246.	ENVRNMNT, BIOLOGIC EVAL	ARCHEOLOGIST	24APR81	28APR81	6 MAY81	8 MAY81	8	0
80	70	16.0	3648.	COORD AND PUBLIC INVOLV	STAFF LEADER	2 JAN81	26JAN81	16APR81	8 MAY81	73	73
80	81	18.0	3510.	COORD AND PUBLIC INVOLV	ENGINEER	2 JAN81	28JAN81	14APR81	8 MAY81	71	0
80	82	10.0	1600.	COORD AND PUBLIC INVOLV	SOIL CON	2 JAN81	16JAN81	24APR81	8 MAY81	79	0
80	83	3.0	456.	COORD AND PUBLIC INVOLV	SOIL SCIEN	2 JAN81	7 JAN81	5 MAY81	8 MAY81	86	0
80	84	2.0	256.	COORD AND PUBLIC INVOLV	TECHNICIAN	2 JAN81	6 JAN81	6 MAY81	8 MAY81	87	0
80	85	6.0	936.	COORD AND PUBLIC INVOLV	BIOLOGIST	2 JAN81	12JAN81	30APR81	8 MAY81	83	0
80	86	4.0	920.	COORD AND PUBLIC INVOLV	ENVRMNT SPEC	2 JAN81	8 JAN81	4 MAY81	8 MAY81	85	0
70	79	5.0	975.	DRAFT REPORT	ENGINEER	8 MAY81	15MAY81	8 MAY81	15MAY81	CRITICAL ITEM	
70	71	2.0	304.	DRAFT REPORT	SOIL SCIEN	8 MAY81	12MAY81	13MAY81	15MAY81	3	0
70	72	5.0	640.	DRAFT REPORT	TECHNICIAN	8 MAY81	15MAY81	8 MAY81	15MAY81	CRITICAL ITEM	
70	73	3.0	522.	DRAFT REPORT	ECONOMIST	8 MAY81	13MAY81	12MAY81	15MAY81	2	0
70	74	5.0	780.	DRAFT REPORT	BIOLOGIST	8 MAY81	15MAY81	8 MAY81	15MAY81	CRITICAL ITEM	
70	75	2.0	460.	DRAFT REPORT	ENVRMNT SPEC	8 MAY81	12MAY81	13MAY81	15MAY81	3	0
70	76	2.0	440.	DRAFT REPORT	IRRIGN SPEC	8 MAY81	12MAY81	13MAY81	15MAY81	3	0
70	77	1.0	123.	DRAFT REPORT	ARCHEOLOGIST	8 MAY81	11MAY81	14MAY81	15MAY81	4	0
70	78	4.0	540.	DRAFT REPORT	TYP, PRT, DIST	8 MAY81	14MAY81	11MAY81	15MAY81	1	0
90	99	3.0	684.	DRAFT REPORT	STAFF LEADER	1 JUN81	4 JUN81	17JUN81	22JUN81	12	12

ALL ZERC DURATION DUMMIES OMITTED

CPM SCHEDULE FOR UINTAH BASIN LATERAL STUDY

PAGE 2.

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
90	91	5.0	975.	DRAFT REPORT	ENGINEER	1 JUN81	8 JUN81	1 JUN81	8 JUN81	CRITICAL	ITEM
90	92	4.0	640.	DRAFT REPORT	SOIL CON	1 JUN81	5 JUN81	16 JUN81	22 JUN81	11	0
90	93	3.0	522.	DRAFT REPORT	ECONOMIST	1 JUN81	4 JUN81	17 JUN81	22 JUN81	12	0
99	100	4.0	540.	DRAFT REPORT	TYP,PRT,DIST	22 JUN81	26 JUN81	22 JUN81	26 JUN81	CRITICAL	ITEM
101	108	3.0	684.	INTERAGENCY REPORT	STAFF LEADER	10 AUG81	13 AUG81	14 AUG81	19 AUG81	4	4
101	102	7.0	1365.	INTERAGENCY REPORT	ENGINEER	10 AUG81	19 AUG81	10 AUG81	19 AUG81	CRITICAL	ITEM
101	103	2.0	320.	INTERAGENCY REPORT	SOIL CON	10 AUG81	12 AUG81	17 AUG81	19 AUG81	5	0
101	104	2.0	256.	INTERAGENCY REPORT	TECHNICIAN	10 AUG81	12 AUG81	17 AUG81	19 AUG81	5	0
101	105	2.0	348.	INTERAGENCY REPORT	ECONOMIST	10 AUG81	12 AUG81	17 AUG81	19 AUG81	5	0
101	106	2.0	312.	INTERAGENCY REPORT	BIOLOGIST	10 AUG81	12 AUG81	17 AUG81	19 AUG81	5	0
101	107	2.0	460.	INTERAGENCY REPORT	ENVRMNT SPEC	10 AUG81	12 AUG81	17 AUG81	19 AUG81	5	0
108	109	6.0	810.	INTERAGENCY REPORT	TYP,PRT,DIST	19 AUG81	27 AUG81	19 AUG81	27 AUG81	CRITICAL	ITEM
110	115	3.0	684.	FINAL REPORT	STAFF LEADER	2 NOV81	5 NOV81	3 NOV81	6 NOV81	1	1
110	111	4.0	780.	FINAL REPORT	ENGINEER	2 NOV81	6 NOV81	2 NOV81	6 NOV81	CRITICAL	ITEM
110	112	2.0	312.	FINAL REPORT	BIOLOGIST	2 NOV81	4 NOV81	4 NOV81	6 NOV81	2	0
110	113	2.0	460.	FINAL REPORT	ENVRMNT SPEC	2 NOV81	4 NOV81	4 NOV81	6 NOV81	2	0
115	116	6.0	810.	FINAL REPORT	TYP,PRT,DIST	6 NOV81	17 NOV81	6 NOV81	17 NOV81	CRITICAL	ITEM
11	20	15.0	0.	DUMMY		6 JAN81	27 JAN81	6 JAN81	27 JAN81	CRITICAL	ITEM
63	70	5.0	0.	DUMMY		1 MAY81	8 MAY81	1 MAY81	8 MAY81	CRITICAL	ITEM
10	80	18.0	0.	DUMMY		5 DEC80	2 JAN81	19 MAR81	14 APR81	71	0
79	90	10.0	0.	DUMMY		15 MAY81	1 JUN81	15 MAY81	1 JUN81	CRITICAL	ITEM
91	99	10.0	0.	DUMMY		8 JUN81	22 JUN81	8 JUN81	22 JUN81	CRITICAL	ITEM
100	101	30.0	0.	DUMMY		26 JUN81	10 AUG81	26 JUN81	10 AUG81	CRITICAL	ITEM
109	110	45.0	0.	DUMMY		27 AUG81	2 NOV81	27 AUG81	2 NOV81	CRITICAL	ITEM

PROJECT COST 63494.

PROJECT COMPLETION 17-NOV-81

CPM SCHEDULE FOR UINTAH BASIN LATERAL STUDY

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR ENGINEER

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
10	20	15.0	2925.	DATA COLLECTION	ENGINEER	5 DEC80	29DEC80	6 JAN81	27JAN81	20	20
20	21	10.0	1950.	DEVELOP CRITERIA	ENGINEER	27JAN81	10FEB81	27JAN81	10FEB81	CRITICAL ITEM	
30	40	10.0	1950.	SIZE, QUANTITY, COST	ENGINEER	10FEB81	25FEB81	10FEB81	25FEB81	CRITICAL ITEM	
40	50	12.0	2340.	WATER, SALT BUDGETS	ENGINEER	25FEB81	13MAR81	25FEB81	13MAR81	CRITICAL ITEM	
80	81	18.0	3510.	COORD AND PUBLIC INVOLV	ENGINEER	2 JAN81	28JAN81	14APR81	8 MAY81	71	0
50	60	3.0	585.	ECONOMICS	ENGINEER	13MAR81	18MAR81	21APR81	24APR81	27	27
70	79	5.0	975.	DRAFT REPORT	ENGINEER	8 MAY81	15MAY81	8 MAY81	15MAY81	CRITICAL ITEM	
90	91	5.0	975.	DRAFT REPORT	ENGINEER	1 JUN81	8 JUN81	1 JUN81	8 JUN81	CRITICAL ITEM	
101	102	7.0	1365.	INTERAGENCY REPORT	ENGINEER	10AUG81	19AUG81	10AUG81	19AUG81	CRITICAL ITEM	
110	111	4.0	780.	FINAL REPORT	ENGINEER	2 NOV81	6 NOV81	2 NOV81	6 NOV81	CRITICAL ITEM	
TOTAL COST				17355. FOR ENGINEER							

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR SOIL CONSERVATION

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
10	11	20.0	3200.	DATA COLLECTION	SOIL CON	5 DEC80	6 JAN81	5 DEC80	6 JAN81	6	0
20	22	4.0	640.	DEVELOP CRITERIA	SOIL CON	27JAN81	2 FEB81	4 FEB81	10FEB81	CRITICAL ITEM	
30	31	2.0	320.	SIZE, QUANTITY, COST	SOIL CON	10FEB81	12FEB81	23FEB81	25FEB81	8	0
50	51	2.0	320.	ECONOMICS	SOIL CON	13MAR81	17MAR81	22APR81	24APR81	28	0
80	82	10.0	1600.	COORD AND PUBLIC INVOLV	SOIL CON	2 JAN81	16JAN81	24APR81	8 MAY81	79	0
90	92	4.0	640.	DRAFT REPORT	SOIL CON	1 JUN81	5 JUN81	16JUN81	22JUN81	11	0
101	103	2.0	320.	INTERAGENCY REPORT	SOIL CON	10AUG81	12AUG81	17AUG81	19AUG81	5	0
TOTAL COST				7040. FOR SOIL CONSERVATION							

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR BIOLOGIST

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
10	14	4.0	624.	DATA COLLECTION	BIOLOGIST	5 DEC80	11DEC80	21JAN81	27JAN81	31	0
20	25	3.0	468.	DEVELOP CRITERIA	BIOLOGIST	27JAN81	30JAN81	5 FEB81	10FEB81	7	0
30	33	6.0	936.	SIZE, QUANTITY, COST	BIOLOGIST	10FEB81	19FEB81	17FEB81	25FEB81	4	0
80	85	6.0	936.	COORD AND PUBLIC INVOLV	BIOLOGIST	2 JAN81	12JAN81	30APR81	8 MAY81	83	0
60	62	5.0	780.	ENVIRONMENT, BIOLOGIC EVAL	BIOLOGIST	24APR81	1 MAY81	1 MAY81	8 MAY81	5	0
70	74	5.0	780.	DRAFT REPORT	BIOLOGIST	8 MAY81	15MAY81	8 MAY81	15MAY81	CRITICAL ITEM	
101	106	2.0	312.	INTERAGENCY REPORT	BIOLOGIST	10AUG81	12AUG81	17AUG81	19AUG81	5	0
110	112	2.0	312.	FINAL REPORT	BIOLOGIST	2 NOV81	4 NOV81	4 NOV81	6 NOV81	2	0
TOTAL COST				5148. FOR BIOLOGIST							

CPM SCHEDULE FOR UINTAH BASIN LATERAL STUDY

PAGE 4.

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR ECONOMIST

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
20	24	3.0	522.	DEVELOP CRITERIA	ECONOMIST	27JAN81	30JAN81	5 FEB81	10FEB81	7	0
30	32	5.0	870.	SIZE, QUANTITY, COST	ECONOMIST	10FEB81	18FEB81	18FEB81	25FEB81	5	0
50	52	30.0	5220.	ECONOMICS	ECONOMIST	13MAR81	24APR81	13MAR81	24APR81		CRITICAL ITEM
70	73	3.0	522.	DRAFT REPORT	ECONOMIST	8 MAY81	13MAY81	12MAY81	15MAY81	2	0
90	93	3.0	522.	DRAFT REPORT	ECONOMIST	1 JUN81	4 JUN81	17JUN81	22JUN81	12	0
101	105	2.0	348.	INTERAGENCY REPORT	ECONOMIST	10AUG81	12AUG81	17AUG81	19AUG81	5	0
=====											
TOTAL COST				8004. FOR ECONOMIST							

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR ENVIRONMENTAL SPEC

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
10	15	2.0	460.	DATA COLLECTION	ENVRMNT SPEC	5 DEC80	9 DEC80	23JAN81	27JAN81	33	0
60	63	5.0	1150.	ENVRMNT, BIOLOGIC EVAL	ENVRMNT SPEC	24APR81	1 MAY81	24APR81	1 MAY81		CRITICAL ITEM
80	86	4.0	920.	COORD AND PUBLIC INVOLV	ENVRMNT SPEC	2 JAN81	8 JAN81	4 MAY81	8 MAY81	85	0
70	75	2.0	460.	DRAFT REPORT	ENVRMNT SPEC	8 MAY81	12MAY81	13MAY81	15MAY81	3	0
101	107	2.0	460.	INTERAGENCY REPORT	ENVRMNT SPEC	10AUG81	12AUG81	17AUG81	19AUG81	5	0
110	113	2.0	460.	FINAL REPORT	ENVRMNT SPEC	2 NOV81	4 NOV81	4 NOV81	6 NOV81	2	0
=====											
TOTAL COST				3910. FOR ENVIRONMENTAL SPEC							

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR IRRIGATION SPEC

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
20	26	10.0	2200.	DEVELOP CRITERIA	IRRIGN SPEC	27JAN81	10FEB81	27JAN81	10FEB81		CRITICAL ITEM
30	34	10.0	2200.	SIZE, QUANTITY, COST	IRRIGN SPEC	10FEB81	25FEB81	10FEB81	25FEB81		CRITICAL ITEM
40	42	3.0	660.	WATER, SALT BUDGETS	IRRIGN SPEC	25FEB81	2 MAR81	10MAR81	13MAR81	9	0
70	76	2.0	440.	DRAFT REPORT	IRRIGN SPEC	8 MAY81	12MAY81	13MAY81	15MAY81	3	0
=====											
TOTAL COST				5500. FOR IRRIGATION SPEC							

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR ARCHEOLOGIST

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
10	16	2.0	246.	DATA COLLECTION	ARCHEOLOGIST	5 DEC80	9 DEC80	23JAN81	27JAN81	33	0
20	27	2.0	246.	DEVELOP CRITERIA	ARCHEOLOGIST	27JAN81	29JAN81	6 FEB81	10FEB81	8	0
60	64	2.0	246.	ENVRMNT, BIOLOGIC EVAL	ARCHEOLOGIST	24APR81	28APR81	6 MAY81	8 MAY81	8	0
70	77	1.0	123.	DRAFT REPORT	ARCHEOLOGIST	8 MAY81	11MAY81	14MAY81	15MAY81	4	0
=====											
TOTAL COST				861. FOR ARCHEOLOGIST							

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR STAFF LEADER

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
20	30	3.0	684.	DEVELOP CRITERIA	STAFF LEADER	LED 27JAN81	30JAN81	5 FEB81	10FEB81	7	7
80	70	16.0	3648.	COORD AND PUBLIC INVOLV	STAFF LEADER	LED 2 JAN81	26JAN81	16APR81	8 MAY81	73	73
60	70	2.0	456.	ENVIRNMNT,BIOLOGIC EVAL	STAFF LEADER	LED 24APR81	28APR81	6 MAY81	8 MAY81	8	8
90	99	3.0	684.	DRAFT REPORT	STAFF LEADER	LED 1 JUN81	4 JUN81	17JUN81	22JUN81	12	12
101	108	3.0	684.	INTERAGENCY REPORT	STAFF LEADER	LED 10AUG81	13AUG81	14AUG81	19AUG81	4	4
110	115	3.0	684.	FINAL REPORT	STAFF LEADER	LED 2 NOV81	5 NOV81	3 NOV81	6 NOV81	1	1
TOTAL COST 6840. FOR STAFF LEADER											

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR SOIL SCIENTIST

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
10	12	5.0	760.	DATA COLLECTION	SOIL SCIEN	SOS 5 DEC80	12DEC80	20JAN81	27JAN81	30	0
20	23	7.0	1064.	DEVELOP CRITERIA	SOIL SCIEN	SOS 27JAN81	5 FEB81	30JAN81	10FEB81	3	0
40	41	4.0	608.	WATER,SALT BUDGETS	SOIL SCIEN	SOS 25FEB81	3 MAR81	9 MAR81	13MAR81	8	0
80	83	3.0	456.	COORD AND PUBLIC INVOLV	SOIL SCIEN	SOS 2 JAN81	7 JAN81	5 MAY81	8 MAY81	86	0
70	71	2.0	304.	DRAFT REPORT	SOIL SCIEN	SOS 8 MAY81	12MAY81	13MAY81	15MAY81	3	0
TOTAL COST 3192. FOR SOIL SCIENTIST											

NETWORK IN ORDER OF TRADE NAMES & LATE START

SCHEDULE FOR TECHNICIANS

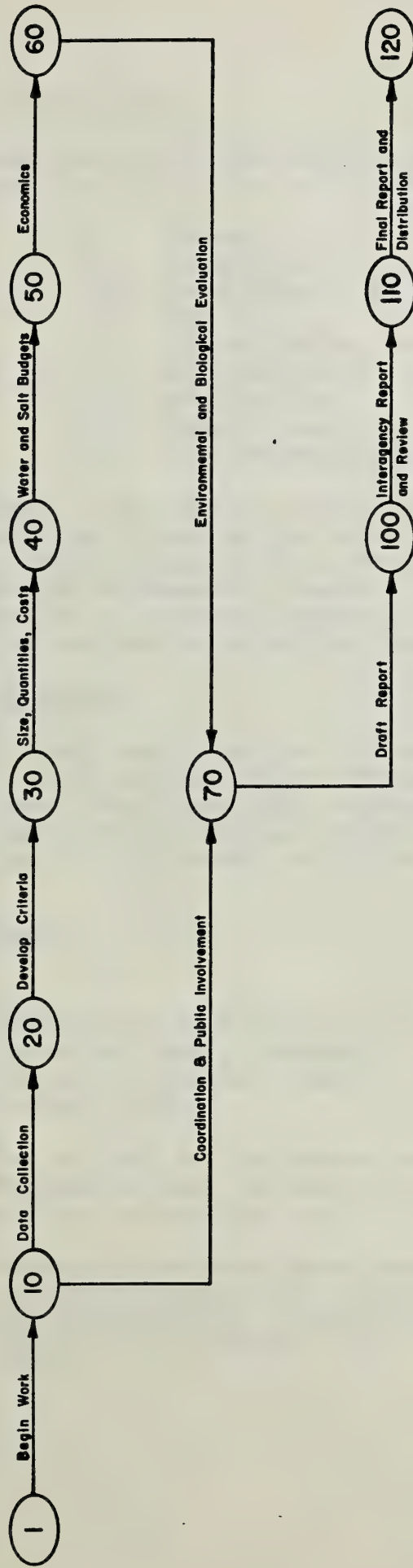
TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
10	13	10.0	1280.	DATA COLLECTION	TECHNICIAN	SCT 5 DEC80	19DEC80	13JAN81	27JAN81	25	0
60	61	4.0	512.	ENVIRNMNT,BIOLOGIC EVAL	TECHNICIAN	SCT 24APR81	30APR81	4 MAY81	8 MAY81	6	0
80	84	2.0	256.	COORD AND PUBLIC INVOLV	TECHNICIAN	SCT 2 JAN81	6 JAN81	6 MAY81	8 MAY81	87	0
70	72	5.0	640.	DRAFT REPORT	TECHNICIAN	SCT 8 MAY81	15MAY81	8 MAY81	15MAY81	CRITICAL ITEM	
101	104	2.0	256.	INTERAGENCY REPORT	TECHNICIAN	SCT 10AUG81	12AUG81	17AUG81	19AUG81	5	0
TOTAL COST 2944. FOR TECHNICIANS											

NETWORK IN ORDER OF TRADE NAMES & LATE START

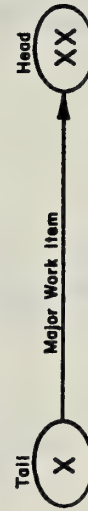
SCHEDULE FOR TYPE,PRINT,DISTRIB

TAIL	HEAD	DUR	COST	JOB DESCRIPTION	% TRD	EARLY ST	EARLY FN	LATE ST	LATE FN	TOT FLT	FREE FLT
70	78	4.0	540.	DRAFT REPORT	TYP,PRNT,DIST	TYP 8 MAY81	14MAY81	11MAY81	15MAY81	1	0
99	100	4.0	540.	DRAFT REPORT	TYP,PRNT,DIST	TYP 22JUN81	26JUN81	22JUN81	26JUN81	CRITICAL ITEM	
108	109	6.0	810.	INTERAGENCY REPORT	TYP,PRNT,DIST	TYP 19AUG81	27AUG81	19AUG81	27AUG81	CRITICAL ITEM	
115	116	6.0	810.	FINAL REPORT	TYP,PRNT,DIST	TYP 6 NOV81	17NOV81	6 NOV81	17NOV81	CRITICAL ITEM	
TOTAL COST 2700. FOR TYPE,PRINT,DISTRIB											

Uintah Basin Lateral Study Work Flow Chart



LEGEND



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	Date	Approved by	Title
Drawn	12/80		
Traced			
Checked			
No.	Sheet	Drawing No.	
1	1		

Final Report Outline

The final report will supplement the existing USDA Salinity Report for the Uintah Basin Unit, Utah. The existing report outline is as follows:

- I. Summary
- II. Introduction
- III. Description of the Study Area
- IV. Problems
- V. Special Studies and Inventories
- VI. Alternatives
- VII. Selected Plan
- VIII. Summary Comparison of Alternatives
- IX. Plan Implementation

The report on the laterals will consist primarily of supplemental tables and narrative to describe the lateral study, the recommended improvements and the likely impacts of these improvements. Major emphasis will be on the selected improvements, impacts of these improvements, and implementation. Additional narrative will supplement other parts of the report as required to explain the lateral study.

Progress Reports

A brief status report on USDA's lateral planning will be made to each meeting of the Colorado River Interagency Salinity Control Committee, which meets three times a year. A more detailed progress report will be submitted to the SCS National Office for use in the USDA annual report on salinity control activities.

X. REFERENCES

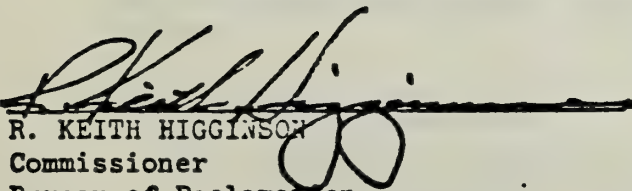
USDA Salinity Report, Uintah Basin Unit, Utah, Colorado River Basin Salinity Control Study, Prepared by US Department of Agriculture, Soil Conservation Service, Salt Lake City, Utah, January 1979 (with Addendum dated November 1980).

USDA Plan of Study for the Uintah Basin Unit, Utah, Colorado River Basin Salinity Control Study, US Department of Agriculture, Soil Conservation Service, Salt Lake City, Utah, March 1976.

The Agricultural Non-Point Source Assessment of the Uintah Basin 208 Water Quality Management Plan, Uintah Basin Association of Governments and Utah State Department of Agriculture in cooperation with the Soil Conservation Service, December 1979.

SUPPLEMENT TO
MARCH 27, 1975
MEMORANDUM OF AGREEMENT
between the
BUREAU OF RECLAMATION
UNITED STATES DEPARTMENT OF THE INTERIOR
and the
SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
Relating to
TITLE II OF PUBLIC LAW 93-320
"COLORADO RIVER BASIN SALINITY CONTROL ACT"

In order to expedite the planning, design, and construction of improvements on selected irrigation laterals in Grand Valley and other salinity control units, it is agreed that the Service will plan and arrange for the installation of needed improvements as resources are available through ongoing United States Department of Agriculture (USDA) programs on those laterals mutually agreed upon by Reclamation and the Service. Highest priority will be given to those laterals on which improvements are necessary for the planning and installation of onfarm system improvement measures. Available data will be provided by Reclamation to the Service. Design criteria for those laterals to be improved through USDA programs will be established by the Service in consultation with Reclamation. The Service will not work on laterals under repayment contract to Reclamation unless a mutually satisfactory arrangement can be reached between Reclamation, the Service, and the local irrigation entity.


R. KEITH HIGGINSON
Commissioner
Bureau of Reclamation
Department of the Interior
Date: 8/9/79

R. M. DAVIS
R. M. DAVIS
Administrator
Soil Conservation Service
Department of Agriculture
Date: AUG 23 1979

MEMORANDUM OF UNDERSTANDING
Between the
Agricultural Stabilization and Conservation Service
the
Science and Education Administration
and the
Soil Conservation Service
of the
United States Department of Agriculture
relating to
Title II of Public Law 93-320
"Colorado River Basin Salinity Control Act"
for the
Uintah Basin Salinity Control Unit, Duchesne and Uintah Counties, Utah

WHEREAS, The Agricultural Stabilization and Conservation Service (ASCS), the Science and Education Administration (SEA), and the Soil Conservation Service (SCS) desire to develop procedures and establish responsibilities with respect to research, demonstration, planning and installation of conservation practices for salinity control as outlined in the USDA Uintah Basin Unit Salinity Report dated January 1979, or as it may be supplemented from time to time; and

WHEREAS, Title II of the Colorado River Basin Salinity Control Act of June 24, 1974, requires, in part, full interagency coordination, cooperation, and liaison; and

WHEREAS, There is a need to maintain salinity concentrations at or below levels found in the lower main stem of the Colorado River, at Imperial Dam in 1972, while the Basin states continue to develop their compact-apportioned waters; and

WHEREAS, The parties desire to increase their already close cooperative efforts in accordance with Memorandum of Understanding between U.S. Department of Agriculture (USDA) and the Department of the Interior (USDI), dated November 27, 1974, and the Title II Memorandum of Agreement between the Bureau of Reclamation and the Soil Conservation Service dated March 27, 1975;

NOW, THEREFORE, For and in consideration of the agreements herein, and for other good and valuable considerations, the parties hereto agree as follows:

A. It is Mutually Agreed:

1. ASCS, SEA, and SCS may enter into sub-agreements at the State level to accomplish the work described herein.

2. The parties to this agreement will give priority to actions necessary to fully implement the Uintah Basin Unit contingent upon the availability of funds and personnel, in accordance with the USDA Uintah Basin Salinity Report.
3. The Director of the SCS River Basins Division, designated the USDA Salinity Control Officer, will prepare an annual report on the work accomplished under this agreement. A copy of the report shall be furnished to the parties hereto.
4. ASCS and SEA shall designate a Washington Office representative to act as liaison and coordinate activities with the USDA Salinity Control Officer.
5. The USDA Salinity Control Officer and the agency representative shall meet at least annually, preferably as close to the beginning of the fiscal year as possible, for review and planning purposes.
6. Publications resulting from activities in this salinity unit, excepting those appearing in publications of general circulation, shall be submitted to the other parties for review and comment prior to publication. All publications shall acknowledge contributions of the parties.
7. Unless otherwise provided for, the parties will maintain control of their personnel and other resources contributed to these activities.
8. The parties shall coordinate with other Federal, State, county and local agencies, as needed. The parties, at local level, will participate in the Uintah Basin Salinity Control Coordinating Committee.
9. A party hereto may modify or terminate its participation upon written notice to the other parties 120 days in advance of the effective date of the modification or termination.

B. ASCS Agrees:

1. To consult the other concerned agencies in the selection of special conservation practices needed to meet the objectives of the study report.
2. To encourage local county committees to participate in the Uintah Basin Salinity Control Coordinating Committee.
3. To make cost sharing for salinity control practices conditional upon the farmer installing, with available cost sharing, those

salinity control and associated wetland and wildlife practices in the conservation plan of operation.

4. To provide cost-share assistance for salinity control practices and related wetland and wildlife management practices which contribute to achieving the objectives of the USDA Uintah Basin Salinity Report and at a level so that the 10-year installation period can be met. .
5. To emphasize long-term agreements (3 years to 10 years) so farmers can be assured of having sufficient cost-sharing available to install all needed measures in an irrigated unit.
6. To encourage farmers to participate in pooling agreements for improving conveyance systems (laterals) where farms are contiguous and contribute to the common problem of salinity. Notify involved farmers that as a condition of participating in an off-farm lateral pooling agreement they must install needed conservation practices to improve their individual onfarm irrigation systems.
7. To explore the need and feasibility of having a uniform cost-sharing rate for salinity control practices in the Uintah Basin whether the signup is in the annual program or under a long-term agreement.
8. To encourage cost-sharing participants to follow the irrigation water management portion of the conservation plan of operations prepared with technical assistance from SCS and to require that practices installed are maintained and used to meet the objectives of the study report.
9. To give first priority to signup and installation of needed practices in the designated areas set by the Salinity Control Coordinating Committee. One area will be designated in each county. Practices covered by referrals outside the designated areas must be compatible with the existing off-farm conveyance system (mains and laterals).
10. To support monitoring and evaluation needed to measure effectiveness of installed practices in meeting the objectives of the study report.

C. SEA Agrees:

1. To encourage continued support of salinity control activities, including educational activities, by the Utah State Extension Service. If additional Extension support is needed, provisions

for the support will be made in a separate agreement with ASCS and/or SCS at the state level.

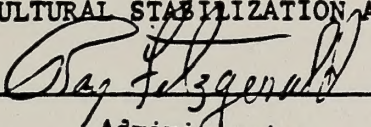
2. To conduct research projects aimed improving onfarm irrigation efficiencies and reducing salt loading, as needed.
3. To provide technical assistance for developing a monitoring and evaluation plan to determine the effectiveness of practices implemented to meet the objectives of the study report, and to provide other support as mutually agreed upon.

D. SCS Agrees:

1. To provide technical assistance so as to complete installation of the selected onfarm salinity control plan within the planned 10-year installation period.
2. To give top priority to servicing Agricultural Conservation Program referrals in the Salinity Control Coordinating Committee-designated areas.
3. To develop a conservation plan of operations, including an irrigation water management plan, for each participant giving highest priority to referrals in the designated areas, taking into consideration the progress of design and construction of the supporting conveyance system by the Water and Power Resources Service (formerly the Bureau of Reclamation).
4. To provide engineering and other technical assistance for the improvement of onfarm systems and laterals outside the designated areas, as resources permit.
5. To prepare an environmental evaluation on practices in the conservation plan of operations. Mitigating wildlife and habitat improvement measures will be included, to the extent practicable, to offset those practices which might have significant adverse effects on the quality of the human environment.
6. To consult with ASCS, SEA, and other concerned USDA agencies on any revision or supplement to the USDA Uintah Basin Salinity Report.
7. To assist individuals and group of farmers throughout the Uintah Basin to achieve irrigation water management by providing technical assistance, irrigation and soil survey data, and encouraging research and cooperative demonstrations.
8. To take leadership in monitoring and evaluating results of the irrigation system improvements and practices and prepare reports thereon.

This agreement shall become effective upon final signature and continue in effect through September 30, 1990.

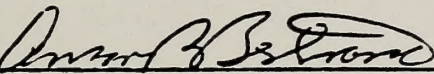
AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

By: 

Title: Administrator

Date: JAN 17 1980

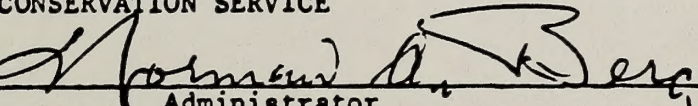
SCIENCE AND EDUCATION ADMINISTRATION

By: 

Title: ~~James E. [unclear]~~
DIRECTOR

Date: SCIENCE AND EDUCATION JAN 22 1980

SOIL CONSERVATION SERVICE

By: 
Administrator

Date: JAN 14 1980

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